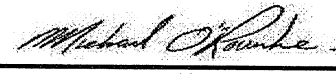


Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information			
Building number, street name		Unit no.	Lot/con.
Municipality RICHMOND HILL	Postal code	Plan number/ other description	
B. Individual who reviews and takes responsibility for design activities			
Name MICHAEL O'ROURKE		Firm HVAC DESIGNS LTD.	
Street address 375 FINLEY AVE		Unit no. 202	Lot/con. N/A
Municipality AJAX	Postal code L1S 2E2	Province ONTARIO	E-mail info@hvacdesigns.ca
Telephone number (905) 619-2300	Fax number (905) 619-2375	Cell number ()	
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]			
☐ House ☐ Small Buildings ☐ Large Buildings ☐ Complex Buildings ☒ HVAC – House ☐ Building Services ☐ Detection, Lighting and Power ☐ Fire Protection ☐ Building Structural ☐ Plumbing – House ☐ Plumbing – All Buildings ☐ On-site Sewage Systems			
Description of designer's work HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12		Model: 4504 OPT IN LAW & OPT. 2ND Project: CENTREFIELD (WEST GORMLEY)	
D. Declaration of Designer			
I, <u>MICHAEL O'ROURKE</u> (print name)		declare that (choose one as appropriate):	
☐ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: _____ Firm BCIN: _____			
☒ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code. Individual BCIN: <u>19669</u> Basis for exemption from registration and qualification: <u>O.B.C SENTENCE 3.2.4.1 (4)</u>			
☐ The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification: _____			
I certify that:			
1. The information contained in this schedule is true to the best of my knowledge. 2. I have submitted this application with the knowledge and consent of the firm.			
June 7, 2021 Date		 Signature of Designer	

NOTE:

- For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d) of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
- Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of authorization, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

Application for a Permit Construct or Demolish – Effective January 1, 2015

SITE NAME: CENTREFIELD (WEST GORMLEY) BUILDING: ROYAL PINE HOMES TYPE: 4604 DATE: Jun-21 LO# 90463 OPT IN LAW & OPT. 2ND GFA: 3223 WINTER NATURAL AIR CHANGE RATE 0.219 HEAT LOSS AT °F. 78 CSA-F280-12 SB-12 PERFORMANCE

ROOM USE	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-4/5	BED-5	ENS-IL	ENS-2/3	HEAT GAIN AT °F. 13
EXP. WALL CLG. HT.	32	10	5	37	13	45	6	12	6	23	
FACTORS	8	8	8	8	8	8	8	8	10	8	
GRS.WALL AREA	256	80	40	296	104	360	48	96	60	184	
GLAZING											
NORTH	21.8	16.0	0	0	0	0	0	0	0	0	
EAST	21.8	41.6	0	0	0	0	0	0	0	0	
SOUTH	21.8	24.9	0	0	47	1024	1953	0	8	174	128
WEST	21.8	41.6	0	0	0	0	0	0	0	0	20
SKYL.T.	35.8	101.2	0	0	0	0	0	0	0	0	436
DOORS	25.8	4.3	0	0	0	0	0	0	0	0	831
NET EXPOSED WALL	4.2	0.7	220	925	162	65	273	152	52	219	36
NET EXPOSED BMT WALL ABOVE GR	3.7	0.6	0	0	0	0	0	0	0	0	157
EXPOSED CLG	1.3	0.6	289	380	170	124	163	73	60	112	660
NO ATTIC EXPOSED CLG	2.8	1.3	0	0	0	0	0	0	0	0	109
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	0	0	112
BASEMENT/CRAWL HEAT LOSS											147
SLAB ON GRADE HEAT LOSS											86
SUBTOTAL HT LOSS	2089	763	268	2138	2042	3034	434	964	393	1688	48
SUB TOTAL HT GAIN											0
LEVEL FACTOR / MULTIPLIER	0.20	0.19	0.20	0.19	0.20	0.19	0.20	0.19	0.30	0.29	0.20
AIR CHANGE HEAT LOSS	389	142	48	398	381	565	81	180	113	315	1165
AIR CHANGE HEAT GAIN	93	25	3	76	113	166	13	30	8	60	
DUCT LOSS											
DUCT GAIN											
HEAT GAIN PEOPLE	2	0	0	0	0	0	0	0	0	0	123
HEAT GAIN APPLIANCES/LIGHTS	480	0	0	0	0	0	0	0	0	0	0
TOTAL HT LOSS BTU/H	540	905	306	2637	2665	3659	515	1143	506	2203	0
TOTAL HT GAIN x 1.3 BTU/H	2479	3810	92	3012	4426	5169	344	1804	224	1752	

ROOM USE	LIV	DIN	KITCH	INLAW	LAUN	WIR	FOY	MUD	BAS
EXP. WALL CLG. HT.	25	25	63	23	0	6	23	16	166
FACTORS	10	10	10	10	8	10	10	11	9
GRS.WALL AREA	250	250	630	230	0	60	230	176	996
GLAZING									
NORTH	21.8	16.0	0	0	0	0	0	0	4
EAST	21.8	41.6	0	0	0	0	0	0	87
SOUTH	21.8	24.9	0	0	0	0	0	0	64
WEST	21.8	41.6	0	0	0	0	0	0	0
SKYL.T.	35.8	101.2	0	0	0	0	0	0	8
DOORS	25.8	4.3	0	0	0	0	0	0	174
NET EXPOSED WALL	4.2	0.7	210	883	145	222	934	164	8
NET EXPOSED BMT WALL ABOVE GR	3.7	0.6	0	0	0	0	0	0	174
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	332
NO ATTIC EXPOSED CLG	2.8	1.3	0	0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS									20
SLAB ON GRADE HEAT LOSS									517
SUBTOTAL HT LOSS	1764	1544	4741	1372	239	411	1840	1173	8378
SUB TOTAL HT GAIN									982
LEVEL FACTOR / MULTIPLIER	0.30	0.29	0.30	0.29	0.20	0.30	0.29	0.30	0.50
AIR CHANGE HEAT LOSS	506	445	1368	396	44	118	531	338	0.76
AIR CHANGE HEAT GAIN	93	44	258	56	4	13	64	10	6359
DUCT LOSS									50
DUCT GAIN									0
HEAT GAIN PEOPLE	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	540	540	540	540	540	540	540	540	0
TOTAL HT LOSS BTU/H	2261	1989	6109	1767	311	529	2370	1511	0
TOTAL HT GAIN x 1.3 BTU/H	3172	1864	7578	2516	892	354	1711	284	14737

TOTAL HEAT GAIN BTU/H: 42217 TONS: 3.52 LOSS DUE TO VENTILATION LOAD BTU/H: 3134 STRUCTURAL HEAT LOSS: 48442 TOTAL COMBINED HEAT LOSS BTU/H: 51576

Michael O'Rourke

SITE NAME: CENTREFIELD (WEST GORMLEY)
BUILDING: ROYAL PINE HOMES

TYPE: 4504

DATE: Jun-21

GFA: 3223 LO# 90463

HEATING CFM 1370 COOLING CFM 1370
TOTAL HEAT LOSS 48,442 TOTAL HEAT GAIN 41,702
AIR FLOW RATE CFM 28.28 AIR FLOW RATE CFM 32.85

furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure for s/a & r/a 0.35

59TN6A-060-14V
FAN SPEED LOW 820
MEDIUM 0
HIGH 1370
DESIGN CFM = 1370
CFM @ 6" E.S.P.

**CARRIER

AFUE = 97 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 58,000

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	14	11	5
R/A	0	0	5	3	1

All S/A diffusers 4"x10" unless noted otherwise on layout.

All R/A runs 5"Ø unless noted otherwise on layout.

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	WIC	MBR	MBR	BED-3	BED-4	BED-5	ENS-4/5	ENS-2/3	BED-4	BED-2	BED-2	LIV	LIV	KT/GT	KT/GT	KT/GT	LAUN	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	0.31	1.24	1.24	1.33	1.80	1.14	2.20	1.80	1.27	1.27	1.27	1.13	1.13	2.04	2.04	2.04	0.31	0.53	2.37	1.51	2.95	2.95	2.95	2.95
CFM PER RUN HEAT	9	35	35	38	51	32	15	62	51	36	36	32	32	58	58	58	9	15	67	43	83	83	83	83
RM GAIN MBH	0.09	1.91	1.91	2.21	2.58	1.80	0.34	1.75	2.58	1.51	1.51	1.59	1.59	2.53	2.53	2.53	0.89	0.35	1.71	0.26	0.41	0.41	0.41	0.41
CFM PER RUN COOLING	3	63	63	73	85	59	11	58	85	49	49	52	52	83	83	83	29	12	56	9	13	13	13	13
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	47	69	67	54	81	76	66	72	76	70	66	71	65	43	30	38	55	59	59	51	30	16	27	48
EQUIVALENT LENGTH	140	150	160	120	160	170	170	140	150	140	170	170	170	130	120	140	130	120	160	190	120	120	120	110
TOTAL EFFECTIVE LENGTH	187	219	227	174	241	246	236	212	226	210	236	241	235	173	150	178	185	179	219	241	120	136	147	158
ADJUSTED PRESSURE	0.09	0.08	0.08	0.1	0.07	0.07	0.07	0.08	0.07	0.08	0.07	0.07	0.07	0.09	0.11	0.09	0.09	0.1	0.08	0.07	0.14	0.12	0.11	0.1
ROUND DUCT SIZE	4	5	5	5	6	6	4	5	6	5	5	5	5	6	6	6	4	4	5	5	6	6	6	6
HEATING VELOCITY (ft/min)	103	257	257	279	260	163	172	455	260	264	264	235	235	296	296	296	296	172	492	316	423	423	423	423
COOLING VELOCITY (ft/min)	34	463	463	536	433	301	126	426	433	360	360	382	382	423	423	423	333	138	411	66	66	66	66	66
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	D	D	D	C	A	B	B	C	A	E	E	A	A	E	E	D	C	B	A	C	E	E	C	B

RUN #	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
ROOM NAME	BAS	DIN	INLAW	ENS	BED-3	ENS-1L																		
RM LOSS MBH	2.95	1.99	1.77	0.91	1.33	0.51																		
CFM PER RUN HEAT	83	56	50	26	38	14																		
RM GAIN MBH	0.41	1.86	2.52	0.67	2.21	0.22																		
CFM PER RUN COOLING	13	61	83	22	73	7																		
ADJUSTED PRESSURE	0.16	0.17	0.16	0.17	0.17	0.17																		
ACTUAL DUCT LGH	57	49	44	26	43	44																		
EQUIVALENT LENGTH	150	140	150	180	180	110																		
TOTAL EFFECTIVE LENGTH	207	189	194	206	223	154																		
ADJUSTED PRESSURE	0.08	0.09	0.08	0.08	0.08	0.11																		
ROUND DUCT SIZE	6	6	6	4	5	4																		
HEATING VELOCITY (ft/min)	423	286	255	298	279	161																		
COOLING VELOCITY (ft/min)	66	311	423	252	536	80																		
OUTLET GRILL SIZE	4X10	4X10	4X10	3X10	3X10	3X10																		
TRUNK	A	B	D	C	C	E																		

SUPPLY AIR TRUNK SIZE										RETURN AIR TRUNK SIZE									
TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	0.07	9.4	10	569	0	0.00	0	0	8	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK B	0.07	11.3	14	685	0	0.00	0	0	8	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK C	0.07	13.4	20	734	0	0.00	0	0	8	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK D	0.07	7.5	10	337	0	0.00	0	0	8	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK E	0.08	11.6	16	624	0	0.00	0	0	8	0	0.00	0	0	8	0	0.05	0	0	8
TRUNK F	0.07	16.3	26	759	0	0.00	0	0	8	0	0.00	0	0	8	0	0.05	0	0	8

RETURN AIR #									
AIR VOLUME	1	2	3	4	5	6	7	8	BR
PLENUM PRESSURE	0	0	0	0	0	0	0	0	0
ACTUAL DUCT LGH	115	115	115	115	130	130	305	140	0
EQUIVALENT LENGTH	85	55	88	78	50	57	37	15	0.15
TOTAL EFFECTIVE LH	195	245	215	235	205	190	245	145	1
ADJUSTED PRESSURE	0.05	0.05	0.05	0.05	0.06	0.06	0.05	0.09	0.09
ROUND DUCT SIZE	7	7	7	7	7	7	10.1	6.5	0
INLET GRILL SIZE	X	X	X	X	X	X	X	X	0
INLET GRILL SIZE	14	14	14	14	14	14	30	14	0

RESIDENTIAL MECHANICAL VENTILATION RECORD

For Certification of Design and Performance of Residential Ventilation Systems

		HEATING SYSTEM/ COMBUSTION APPLIANCES		ROLL #:		PERMIT #:	
A	HEATING SYSTEM/ COMBUSTION APPLIANCES	☒ Forced Air	☐ Non Forced air	Electric		Gas	
		☐ Electric	☐ Gas	☐ Oil		☐ Other	
		No Combustion Appliances		No Depressurization limit			
		Solid Fuel (including Fireplaces)		5 pa Depress limit			
		☒ Direct Vent (sealed combustion)	No Dep Limit				
B	EXHAUST EQUIPMENT	☐ Positive Venting Induced Draft	☐ Pascals limit				
		Natural Draft or B-Vent Atmospheric		5 pa depress limit			
		Lowest Depressurization Limit		Pa.			
		Clothes Dryer(s)		(150 cfm default)			
		Downdraft Cook Top		(220 cfm default)			
C	TOTAL VENTILATION CAPACITY (TVC)	Other (exhaust)		(over 150 cfm)			
		Depressurization test/Calc. Required?		☐ Yes ☐ No			
		Bsmt & Master Bedroom	2 @ 20 cfm	40 cfm			
		Other Bedrooms	5 @ 10 cfm	50 cfm			
		Bathrooms & Kitchens	6 @ 10 cfm	60 cfm			
D	EXHAUST CAPACITY	Other Hab. Rooms		5 @ 10 cfm		50 cfm	
		Total Ventilation Capacity (TVC)		200 cfm			
		Minimum Continuous Exhaust					
		Kitchen(s)	@ 60 cfm =	cfm			
		Bathroom(s)	@ 20 cfm =	cfm			
E	TVC SYSTEM	Minimum Intermittent Exhaust					
		Kitchen(s)	1 @ 100 cfm =	100 cfm			
		Bathroom(s)	5 @ 50 cfm =	250 cfm			
		Total		350 cfm			
		Location: BSMT					
F	TVC SYSTEM	Manufacturer/Model: VANE 65H		☒ HVI rated			
		Design Airflow		155 cfm high 64 cfm low			
		HRV/ERV 75 % Sensible Efficiency @ 0°C		64 watts			
		HRV/ERV 64 % Sensible Efficiency @ -25°C		57 watts			
		Location: BSMT					
G	ADDITIONAL (exhaust) EQUIPMENT	1 Location: ENS		50 cfm 3.5 Sones			
		Manufacturer/Model: N/A		☒ TVC ☒ HVI			
		2 Location: ENS-4/5		50 cfm 3.5 Sones			
		Manufacturer/Model: N/A		☒ TVC ☒ HVI			
		3 Location: ENS-2/3		50 cfm 3.5 Sones			
H	INSTALLER	Manufacturer/Model: N/A		☒ TVC ☒ HVI			
		4 Location: W/R		50 cfm 3.5 Sones			
		Manufacturer/Model: N/A		☒ TVC ☒ HVI			
		I certify this ventilation system install to be in accordance with:					
		Signature: _____ Date: _____					
I	DESIGNER	Name: HVAC DESIGNS LTD.		HRAI #: 001820			
		Address: 375 FINLEY AVENUE, UNIT 202					
		City: AJAX		P.C. L1S 2E2			
		Phone: (905) - 619 - 2300		Fax: (905) - 619 - 2375			
		Email Address: info@hvacdsgns.ca		Other #			
J	BUILDER	I certify this ventilation system design to be in accordance with:					
		☒ CSA F326 M-91					
		R-2000					
		Signature: _____		Date: 6/10/2021			
		Controls Functioning		☐ Fans operating and clean			
K	INSTALLATION CHECKLIST	Filters Clean		☐ Flow measuring stations			
		Dampers Accessible		☐ Insulated ducts sealed			
		Drain loop and connection		☐ Label supply/exhaust hood			
		Distribution to all habitable rooms (non forced air)					
		Forced air system ☐ Continuous mode ☐ Interlocked					
L	MEASURED TVC SYSTEMS	Kitchen intake grease filter		☐ Kitchen exh. 40" to range			
		Exhaust 4" above grade		☐ Supply 18" above grade			
		Supply intake 6' from exhaust (recommended)					
		Supply intake 3' from other exhaust					
		TVC system SUPPLY airflow measured		cfm High _____ cfm Low _____			
M	MEASURED TVC SYSTEMS	TVC system EXHAUST airflow measured		cfm High _____ cfm Low _____			
		Name: _____		HRAI #: _____			
		Address: _____					
		City: _____		P.C. _____			
		Phone: _____		Fax: _____			

Prepared By: HVAC DESIGNS LTD.	HRAI #: 001820	Job Name:
Signature: _____	Date: 6/10/2021	Job #: 90463
		Official Use:



CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																															
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																															
LO#: 90463	Model: 4504																																																														
Volume Calculation																																																															
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Air Change & Delta T Data																																																															
6.2.6 Sensible Gain due to Air Leakage																																																															
$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$																																																															
0.219	$\times 328.53 \times 7^\circ\text{C} \times 1.2 = 191 \text{ W}$																																																														
	$= 0.068 \times 328.53 \times 7^\circ\text{C} \times 1.2 = 652 \text{ Btu/h}$																																																														
6.2.7 Sensible heat Gain due to Ventilation																																																															
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																																															
149 CFM	$\times 78^\circ\text{F} \times 1.08 \times 0.25 = 3134 \text{ Btu/h}$																																																														
	$= 149 \text{ CFM} \times 13^\circ\text{F} \times 1.08 \times 0.25 = 516 \text{ Btu/h}$																																																														
5.2.3.2 Heat Loss due to Mechanical Ventilation																																																															
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																																															
149 CFM	$\times 78^\circ\text{F} \times 1.08 \times 0.25 = 3134 \text{ Btu/h}$																																																														
	$= 149 \text{ CFM} \times 13^\circ\text{F} \times 1.08 \times 0.25 = 516 \text{ Btu/h}$																																																														
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																															
$HL_{airrr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																															
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{level})</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)</th> </tr> <tr> <td>1</td> <td>0.5</td> <td rowspan="5">12,718</td> <td>8,378</td> <td>0.759</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>13,227</td> <td>0.288</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>13,648</td> <td>0.186</td> </tr> <tr> <td>4</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> </table>	Level	Level Factor (LF)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)	1	0.5	12,718	8,378	0.759	2	0.3	13,227	0.288	3	0.2	13,648	0.186	4	0	0	0.000	5	0	0	0.000																																					
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4	0		0	0.000																																																											
5	0		0	0.000																																																											
*HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0																																																															

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 4504	OPT IN LAW & OPT. 2ND	BUILDER: ROYAL PINE HOMES
SFQT: 3223	LO# 90463	SITE: CENTREFIELD (WEST GORMLEY)

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-6	OUTDOOR DESIGN TEMP.	88
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	2.50	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	TIGHT	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	41767.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	7
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 46.0 ft	WIDTH: 37.0 ft	EXPOSED PERIMETER:	166.0 ft

2012 OBC - COMPLIANCE PACKAGE

Component	Compliance Package SB-12 PERFORMANCE	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.70
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22+1.5	18.50
Basement Walls Minimum RSI (R)-Value	20	21.12
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	1.6	-
Skylights Maximum U-Value	2.6	-
Space Heating Equipment Minimum AFUE	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	TE=94%	-

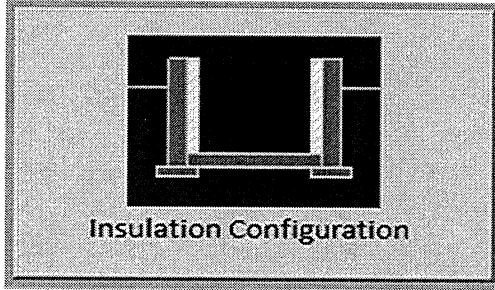
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Richmond Hill	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	14.0	 Insulation Configuration
Floor Width (m):	11.3	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.9	
Door Area (m ²):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1638

TYPE: 4504
LO# 90463

OPT IN LAW & OPT. 2ND

Air Infiltration Residential Load Calculator

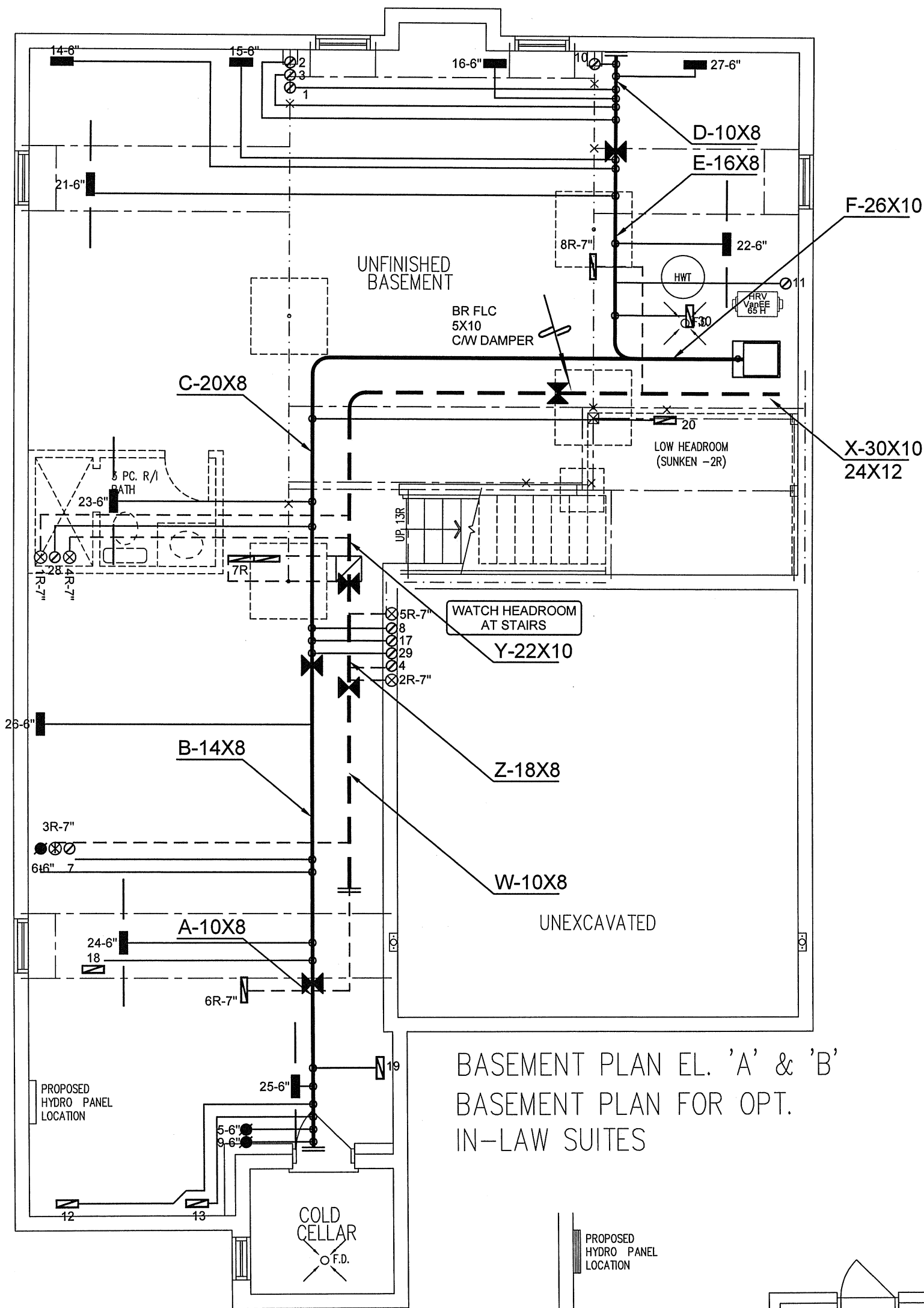
Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario			
Region:	Richmond Hill			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	6.40			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1182.7			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Detached (2.5 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1104.1 cm ²		
	2.50	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	70.4	70.4		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.219			
Cooling Air Leakage Rate (ACH/H):	0.068			

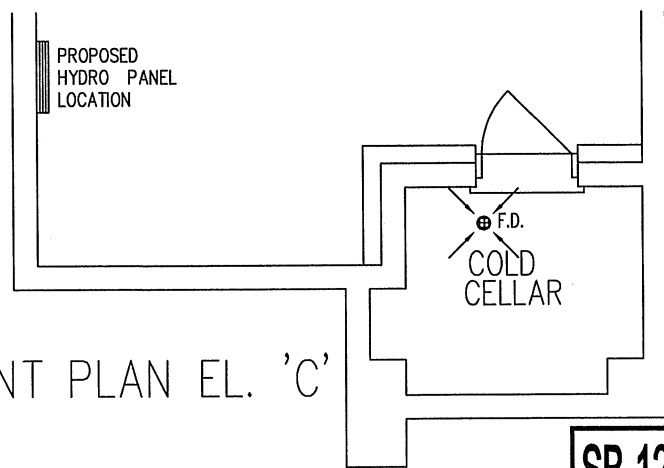
TYPE: 4504

LO# 90463

OPT IN LAW & OPT. 2ND



BASEMENT PLAN EL. 'A' & 'B'
BASEMENT PLAN FOR OPT.
IN-LAW SUITES



BASEMENT PLAN EL. 'C'

CSA-F280-12

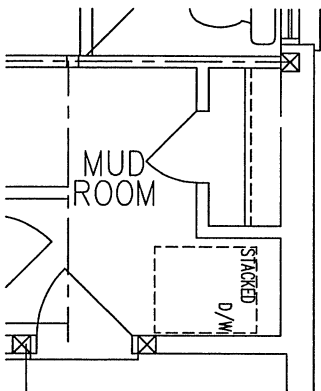
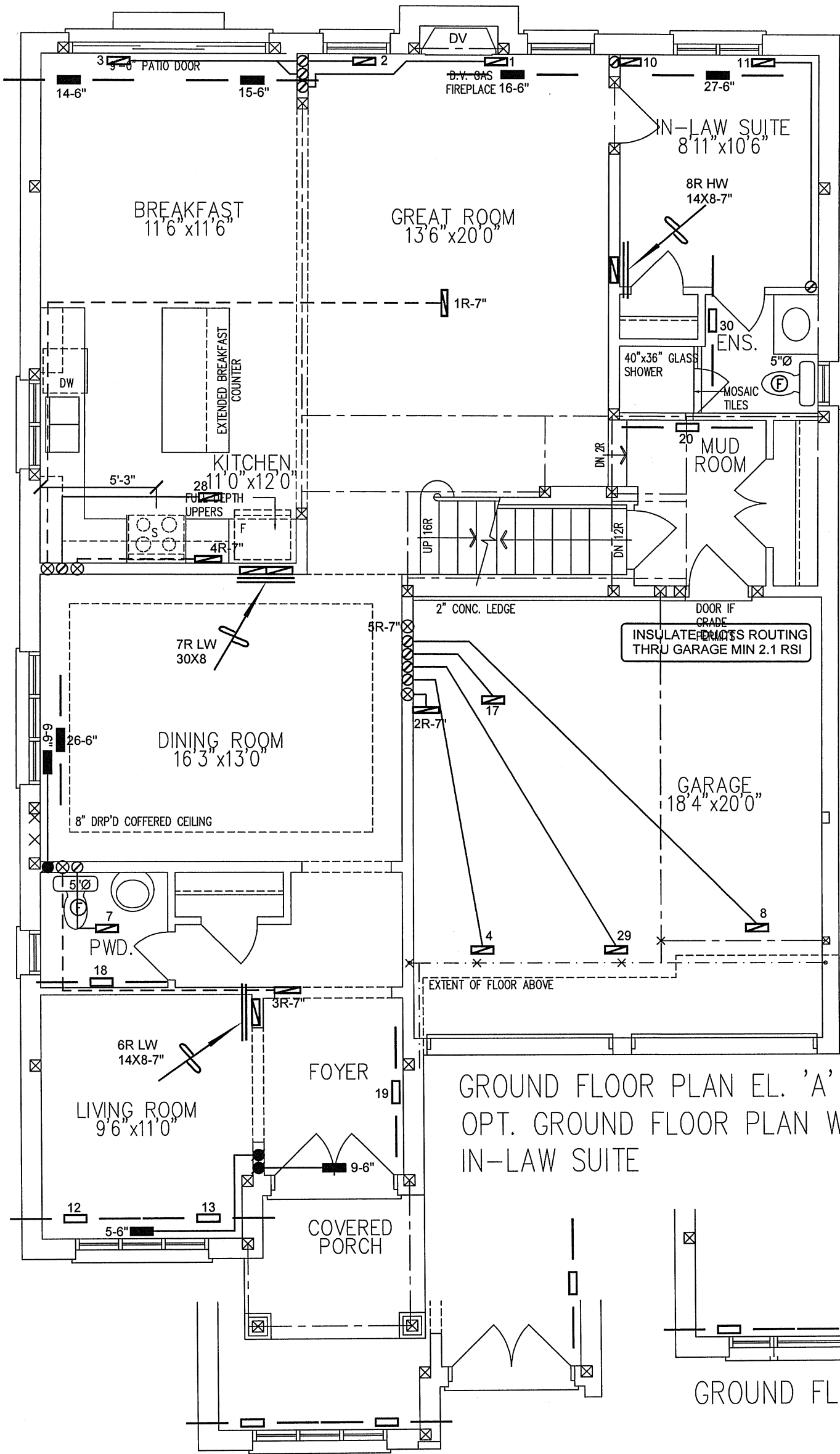
SB-12 PERFORMANCE

I MICHAEL O'ROURKE HAVE REVIEW
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C.32.5 OF THE
BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

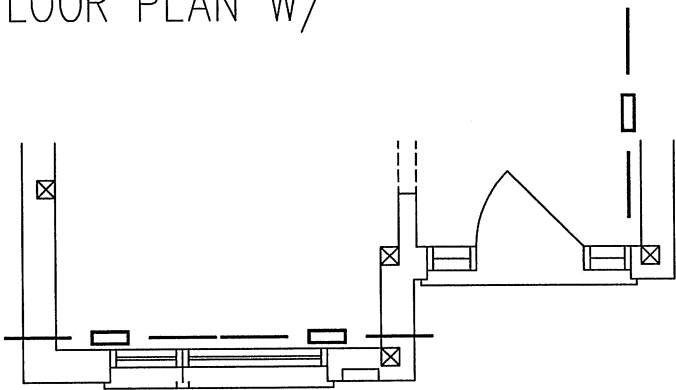
HVAC LEGEND						3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	2.
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	1. REVISED AS PER CAD JUNE/2021
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	No. Description Date

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Client		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.	HEAT LOSS 51576 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS		Sheet Title BASEMENT HEATING LAYOUT				
ROYAL PINE HOMES			MAKE	CARRIER	3RD FLOOR						
			MODEL	59TN6A-060-14V	2ND FLOOR	14			5	4	
			INPUT	60 MBTU/H	1ST FLOOR	11			3	3	
			OUTPUT	58 MBTU/H	BASEMENT	5	1	0			
Project Name		Specializing in Residential Mechanical Design Services	COOLING	3.5 TONS	ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A			Date	APR/2021		
CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			FAN SPEED	1370 cfm @ 0.6" w.c.				Scale	3/16" = 1'-0"		
			BCIN# 19669								
			OPT IN LAW & OPT. 2ND 4504 3223 sqft					LO#	90463		



OPT. IN-LAW SUITE
W/ OPT. LAUNDRY



I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.3 OF THE BUILDING CODE.

Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

GROUND FLOOR PLAN EL. 'B'

GROUND FLOOR PLAN EL. 'A'
OPT. GROUND FLOOR PLAN W/
IN-LAW SUITE

GROUND FLOOR PLAN EL. 'C'

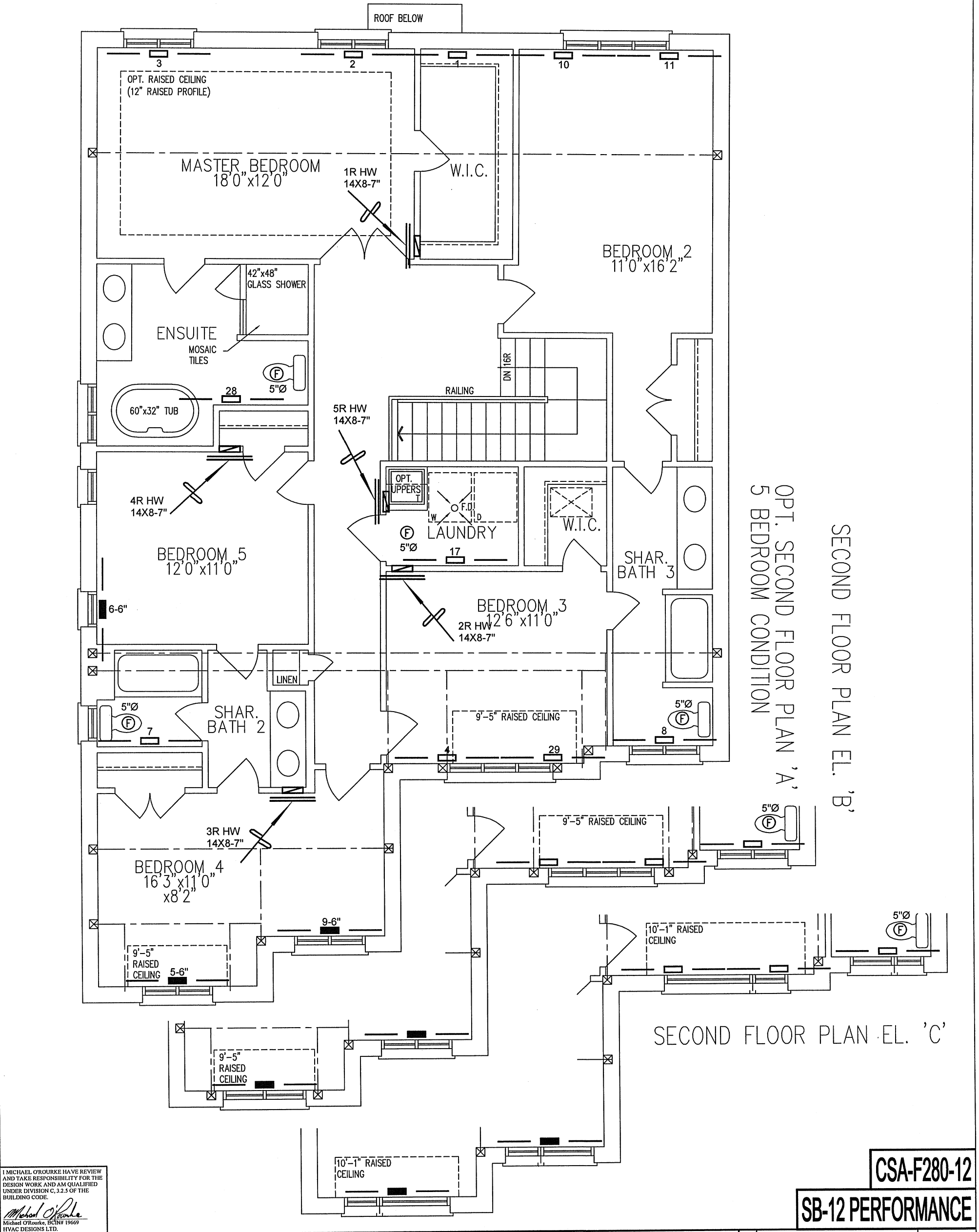
CSA-F280-12

SB-12 PERFORMANCE

HVAC LEGEND						3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	2.
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	1. REVISED AS PER CAD
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	No. Description Date

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Client ROYAL PINE HOMES		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services	Sheet Title FIRST FLOOR HEATING LAYOUT	
Project Name CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			Date APR/2021	
OPT IN LAW & OPT. 2ND 4504 3223 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO# 90463	
		Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.		



I MICHAEL O'Rourke HAVE REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12

SB-12 PERFORMANCE

HVAC LEGEND							3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	REVISED AS PER CAD
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS	

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

Client ROYAL PINE HOMES		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.	Sheet Title SECOND FLOOR HEATING LAYOUT	
Project Name CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			Date APR/2021	
OPT IN LAW & OPT. 2ND 4504			Scale 3/16" = 1'-0"	
3223 sqft			BCIN# 19669	
			LO# 90463	